

anthrax is only in certain cases guarded against by Pasteur's attenuated virus; (3) that the dependence of consumption on Koch's *Bacillus tuberculosis* is far from established; (4) that its fatality is very far below that of small-pox or hydrophobia, and its treatment far more successful.

Consumption is the most important disease of temperate climates, both by its prevalence, its mortality, and its incidence on young adults; so that the sacrifice of a few rabbits or cats for even a remote chance of controlling its ravages is well justified. But the chance is, we fear, remote.

### NOTES

THE friends and former students of Prof. P. J. Van Beneden, of Louvain, are about to celebrate there the fiftieth year of his professorship. Since the year 1836 this distinguished *savant* has occupied the position of Professor of Zoology at the Louvain University, and it is proposed to present him, on the occasion of his jubilee, with a gold medal bearing his portrait. After half a century of teaching and the accomplishment of a vast amount of other work, Prof. Van Beneden still remains fresh in mind and body. His writings have embraced with equal success various branches of biological science, and have gained for him a reputation of the first rank, which has just been crowned by the award of the Cuvier Prize by the Academy of Sciences of Paris. There is no doubt that the proposed demonstration to honour Prof. Van Beneden on his jubilee will find a ready echo in this country, where he possesses numerous friends.

In a recent debate in the French Chamber of Deputies on a Bill permitting any person by will to regulate the conditions of his funeral, a clause was added at the instance of M. de Mortillet, the eminent anthropologist, enabling any person to dispose of his body in favour of educational or learned societies. M. de Mortillet stated that the Autopsy Society founded by Broca had been allowed to retain the brains of Gambetta, Dr. Bertillon, and two journalists, but the authorities might at any time take these away from its museum, as also any bones or skeletons. The proposition was adopted by 268 votes to 198.

WE are glad to receive a copy of the *Annual Companion to the "Observatory."* Its object is to give, in a collected form, the whole of those Ephemerides which have hitherto been printed month by month in the *Observatory*. This issue is regarded as an experiment, and the editors ask for suggestions for the improvement of future *Companions*, and for criticisms on the present one. In future it is intended to issue it with the December number or before. The principal sources from whence the Ephemerides have been derived are as follows:—The "Meteor Notes" have been taken principally from the valuable series of papers by Mr. Denning in vols. i., ii., and iii. of the *Observatory*, supplemented from the British Association Reports. Mr. Denning has also kindly revised them. The Ephemerides for the physical observations of Jupiter and Mars are derived by permission from those calculated by Mr. Marth, and published by the Council of the Royal Astronomical Society in the *Monthly Notices*. The Ephemerides for the satellites of Mars, Saturn, Uranus, and Neptune are taken from the *American Nautical Almanac*, corrected, in some cases, for recent observations made at Greenwich. The elements of occultations and times of eclipses of Jupiter's satellites are extracted from the *English Nautical Almanac*. The Catalogue and Ephemerides of Variable Stars are derived from the *Annuaire du Bureau des Longitudes*. The publication will certainly be of much practical value.

ON the evening of Wednesday, February 17, Prof. A. B. W. Kennedy and the Committee of the Engineering Society held a

successful *soirée* at University College, London, in connection with the College Society. Visitors were received in the engineering laboratory, where machinery was in motion, and Mr. A. S. Ashcroft's autographic stress diagram apparatus was shown in action. All the available space was occupied with exhibits. The College Society organised a show of photographs and photographic apparatus in the library, where Messrs. Clarke and Clarke exhibited their method of printing by gaslight. The *soirée* was attended by about 1000 visitors.

LAST autumn the run of salmon up most of our rivers, especially those falling into the North Sea, was quite unprecedented. It is worthy of notice that at the same time (that is from August to November) they ascended, in equal, if not still more remarkable numbers, the rivers that flow into the North Pacific Ocean, as well on the Japan side as the American. The "canning companies" in British Columbia were quite unable to obtain boxes and barrels quickly enough to keep pace with the supply, and fine large fish were sold for a cent apiece. Had this abundance of the Salmonidæ (sea-trout and bull-trout were as numerous in proportion as salmon) been confined to this part of the world, one might have supposed that an epidemic amongst dog-fish had enabled a much greater number of smolts to escape at the mouths of the rivers on their descent than commonly do; but under the circumstances some more satisfactory explanation seems to be required. Possibly in some manner the quantity of ice in northern waters on both sides of America had an influence upon these fish, or those that prey upon them in the deep water.

THE Italian Ministry of Agriculture has just undertaken an interesting experiment. Half a million of fish eggs were artificially hatched, and the young brood has been distributed all over the centre of the Lake of Como. If the experiment succeeds fairly well, it will be taken up on a large scale, and the department will undertake the re-stocking of the Italian waters. Efforts will be made immediately to revive and extend the rearing of lobsters.

THE old Tour St. Jacques la Boucherie, Paris, celebrated in connection with Pascal's experiments on atmospheric pressure, is now the site of a Laboratory of Physics. The inauguration took place on January 13. The tower was lighted by incandescent lamps.

LARGE sulphur deposits are reported to have been recently discovered on the southern slopes of the Caucasus.

ECUADOR was visited by natural calamities during January, which probably have been the cause of great loss of life. On January 12 the sky in and around Guayaquil was of a dark red colour, as if coloured by an immense conflagration. Detonations heard in the direction of Cotopaxi, and accompanied by earthquakes and subterranean noises, showed that some volcanic eruption was in progress. The noise and shocks lasted for two days and nights. At Yaguachi, opposite Guayaquil, a rain of ashes was observed. It is feared that the town of Latacunga, which is situated at the foot of Cotopaxi, is destroyed.

A REMARKABLE effect of lightning has been recently reported by Prof. L. Weber in a German serial. At Ribnitz, in Mecklenburg, during a violent thunderstorm, with rain and hail, about 6 a.m., the lower pane of a window on the first floor was broken by lightning, and a jet of water was thrown upwards through the aperture to the ceiling, where it detached part of the ceiling, and this, falling with the water, broke a small cigar-table below. Three bucketfuls of water were afterwards taken from the room. The hole in the window was like that from a bullet, and there were radial cracks. The path of the lightning is not very clear, but that it passed through the glass could not be doubted. Some cigars on the table, it may be mentioned, were

carbonised. As to the jet of water, Prof. Weber rejects the hypothesis of a sudden generation of vapour forcing up water from the street. Another explanation offered is that the lightning, passing through the window to the street, generated a vortex of air about itself with vacuum in the interior, through which the water was driven as through a tube. A third hypothesis remains, viz. that a conical *trombe* struck the street, was reflected, and passed through the window in the form of a jet of water. In this case the lightning would merely have accompanied or preceded the *trombe*. Prof. Weber seeks further light on such phenomena.

ON the evening of January 9 a very fine display of the aurora borealis was seen in the southern parts of Norway.

A MAGNIFICENT meteor was seen by the station-master at Leangen Station, in the north of Norway, on January 16, at 8.15 a.m., it being still dark. He states that the meteor first looked like a small star, but, approaching with great velocity, soon attained the size of a cheese-plate. It had a dazzling white light, very like the electric, and was clearly visible, being below the clouds in the upper part of the sky. When it had passed the zenith and reached the eastern horizon, it separated into several parts, which gradually became extinguished. It left a trail for a few seconds, brownish-yellow in colour. Another meteor, to which we referred last week as having been seen at Aas, near Christiania, at 5.30 p.m. on January 5, was also seen in various other parts of the province of Smaalenene, even as far south as Frederikshald, near the Swedish frontier (distance from Aas about 100 kilometres = 63 miles). It appeared there in the constellation Taurus, at 5.15 p.m., and moved in a north-westerly direction. It left a long bright trail, and its passage was, according to some, accompanied by a faint hissing.

ON New Year's Eve an earthquake was felt in the central parts of Norway, particularly at Elverum and Løiten, where the houses shook. Another shock was felt in the province of Christiansand, at about 4 a.m. on January 16, followed by vivid flashes of lightning. In several houses the doors sprang open, and furniture, &c., was moved. A girl was thrown out of bed in one place. The barometer was very low at the time, but remained the same as on the previous day.

PROF. LOMMEL has recently described (*Wied. Ann.* 1) an aërostatic balance for determining the specific gravity of gases. It is useful for lecture experiments. Under one scale of a balance is hung, by means of a wire, a closed glass balloon, which is inclosed in a glass vessel having in its cover a small hole for the wire. This vessel has a side tube, with stopcock, near the bottom. The instrument being balanced while air is in the vessel, another gas is allowed to stream in and displace the air, whereupon the balloon rises or sinks according as the gas is heavier or lighter than air. By adding weights in one scale or the other equilibrium is restored, and one finds how much more or less a volume of gas equal to that of the balloon weighs than the same volume of air at the same temperature and pressure.

WE have received the Calendars of the University College of Aberystwith and Cardiff for the Session 1885-86, and the reports of work in both cases are very satisfactory, showing, as they do, a considerable increase in the number of students, and in the general scope of the educational work. We have examined with especial interest the Aberystwith Calendar, for it will be remembered that during last summer the College there was almost wholly destroyed by fire. The Council met the situation by taking a large hotel, where the work of the institution is carried on apparently without any serious inconvenience. The Principal of this College calls attention to a question which requires the careful consideration of the responsi-

ble authorities of the three University Colleges of Wales, and which, for the sake of the equitable distribution of the prizes and scholarships of these institutions, it is to be hoped may speedily be settled. Principal Edwards points out the danger that healthy and legitimate rivalry between the Colleges is in danger of degenerating into a bid for students by the offer of money bribes, and he quotes the case of a student who wandered from one to the other, taking scholarships at all three by recommencing his course at each in succession. There is apparently no regulation preventing a graduate of one beginning as an undergraduate at each of the others, and carrying off the prizes to the disadvantage of *bonâ-fide* students. Unfortunately, the negotiations which have been undertaken to prevent this grave abuse have hitherto proved unsuccessful, but it behoves the authorities concerned to prevent this misapplication of money so nobly subscribed for education by all classes of the Welsh people. Two very interesting and suggestive tables will be found at page 25 of the Aberystwith Calendar. The first gives the ages of the students: 76 are over 20 years of age, 22 over 25, and 5 over 30. The second contains the occupations of the parents, and shows in the most marked way the struggles which, to their infinite credit, Welsh parents make to educate their children. This trait in the Welsh character is well known, but we have not seen it exhibited in this definite, concrete manner before.

THE additions to the Zoological Society's Gardens during the past week include a Bonnet Monkey (*Macacus sinicus* ♀) from India, presented by Miss Douglas; a Chacma Baboon (*Cynocephalus porcellus* ♀) from South Africa, presented by Mr. F. Radcliffe; a Ring-tailed Coati (*Nasua rufa* ♀) from South America, presented by Miss A. Pagella; an Orange-winged Amazon (*Chrysotis amazonica*) from South America, presented by Mr. G. F. Richards; two Feline Douracoulis (*Nyctipithecus vociferans*), two Silky Marmosets (*Midas rosalia*), a Razor-billed Curassow (*Mitua tuberosa*), a Mantled Buzzard (*Leucopternis palliata*) from Brazil, a Raccoon (*Procyon lotor*) from North America, purchased; a Collared Fruit Bat (*Cynonycteris collaris*), born in the Gardens.

#### OUR ASTRONOMICAL COLUMN

THE NEW STAR IN THE GREAT NEBULA IN ANDROMEDA.—As the *Nova* in Andromeda was the first object of its kind to which accurate photometric methods of observation were applied, Prof. Seeliger of Munich has taken the opportunity of investigating whether the observed variations of brightness throw any light on the physical history of the phenomenon. If we suppose that the surface-temperature of a "new" star is suddenly increased by an enormous quantity, and, in consequence, the brightness increased to a corresponding extent, and assume that the latter is proportional to an arbitrary power,  $n$ , of the temperature, then the light curve constructed from the observations will be a curve which represents the  $n$ th power of the successive temperatures of a cooling body. Prof. Seeliger has deduced an expression for the temperature of a sphere at any time,  $t$ , on the assumption that the sphere is homogeneous with respect to the conduction of heat, that at the time  $t = 0$  it has the same temperature throughout its interior, and that the temperature of the surrounding medium is zero. If, then,  $\theta$  be the brightness corresponding to a temperature  $\theta$ , we have

$\theta = h^{\frac{1}{n}}$ , and using Pogson's scale for transforming brightness into stellar magnitude, there results a formula for the magnitude of the cooling star at any time. For the purpose of comparing his formula with Herr Müller's photometric observations of the *Nova*, extending from 1885 September 2 to October 13, Prof. Seeliger assumes that  $n = 1$ , and that the epoch for which  $t = 0$  is 1885 August 27d. 8h. Berlin M.T. He also uses quite approximate values for the constants involved in his formula, the more accurate determination of which would be a work of difficulty. Under these circumstances he gets a very fair agreement between the observed and computed values, which would,